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Mobile Communication Terminal and Method for Measuring Human Body Status

Field of the Invention

The present invention relates to a mobile communication terminal and method for measuring human body status, in particular to a mobile communication terminal that measures the body status of a user through a brain wave measurement sensor and a microphone carried by the mobile communication terminal and compares it with a pre-set value so as to easily learn the body status of the user as well as the method thereof.

Background of the Invention

Thanks to the development of technology, mobile communication terminals have overstepped the stage of transferring merely voice information, but they start to be able to provide various multimedia contents like text information, games, moving pictures and movies.

Recently, such mobile communication terminals have been used to provide many value-added services like alcohol detection and biological clock detection, and such value-added services that take advantage of the portability of mobile communication terminals are continuously increasing.

On the other hand, in order to measure human body changes during a sleeping state, brain wave measurement devices, voice measurement devices, video devices and various body measurement devices have been used.

However, said devices are usually integrated devices needed for making professional and academic experiments, so they are complex in structure and hard to carry and move, accordingly, they cannot be used in daily life.

Another problem is that using said devices to measure human body status is time-consuming and expensive.

Summary of the Invention

The present invention is just for solving the above-mentioned technical problems and it aims at providing a mobile communication terminal for measuring human body status, which measures, through a brain wave measurement sensor and a microphone, the strength of sound sources of snores and sleeptalks of a user or measures the brain waves of a user, thereby to easily learn the body status of the user.

Another object of the present invention is to provide a method of measuring human body status by means of a mobile communication terminal, which measures the body status of a user through a brain wave measurement sensor and a microphone carried by the mobile communication terminal, and compares it with a pre-set value so as to easily learn the user's body status.

To achieve the above-mentioned technical objects, the technical solution of the present invention is as follows: a mobile communication terminal for measuring human body status, which comprises: a brain wave measurement sensor measuring the brain waves emitted by a user; a brain wave analyzing section for analyzing by comparing the brain waves measured by the brain wave measurement sensor with a pre-set brain wave spectrogram; and an informing section informing the human body

status to the outside according to the result of analysis from the brain wave analyzing section.

The brain wave measurement sensor has, on one side thereof, a sensor for measuring the user brain wave, and on the other side thereof, a plug for electrically conductive connection with a socket so as to transmit the brain waves measured by the sensor to the terminal.

The informing section comprises a displaying section that displays the result of analysis from the brain wave analyzing section in a visual manner; and a loudspeaker that informs the result of analysis from the brain wave analyzing section in an auditory manner.

The mobile communication terminal for measuring human body status of the present invention further comprises: a microphone for converting the sound source generated from the user into electric signals of speech; a speech analyzing section for analyzing by comparing the electric signals of speech transmitted through the microphone with pre-set speech signals; and a storage section for storing the results of analysis from the brain wave analyzing section or the speech analyzing section.

The microphone is used to convert snores or sleeptalks of a user into electric signals of speech when the user is in a sleeping state.

Statistics is made to the results of analysis stored in the storage section at certain intervals.

The present invention also provides a method for measuring human body status by means of a mobile communication terminal, which comprises: a measuring step that measures the body status of a user through a brain wave measurement sensor and a microphone; an analyzing step that

analyzes by comparing the signal values measured by the measuring step with a pre-set value; and an informing step that informs the result of analysis from the analyzing step.

The measuring step measures the α wave, θ wave and δ wave generated by the user's brain using the brain wave measurement sensor and measures the strength of sound source of the snores or sleeptalks of the user that have been converted by the microphone into electric signals of speech when the user is in a sleeping state.

The analyzing step divides the human body status into "normal state", "attention state" or "dangerous state" according to the result of comparison and analysis of the measured values and the pre-set value.

The effect of the present invention is that the mobile communication terminal for measuring human body status and the method for measuring human body status of the present invention measures the user's body status through the brain wave measurement sensor and microphone carried by the mobile communication terminal and compares it with a pre-set value so as to easily learn the user's body status.

In addition, by measuring the snores or sleeptalks of the user during sleep and informing the user, the user is enabled to easily and continuously supervise his/her own body status.

Furthermore, by performing brain wave measurement and speech measurement using a terminal that is always carried by the user, the user may be able to conveniently learn his/her body status in daily life without being limited by the location and time.

Brief Description of the Drawings

Fig. 1 is a block diagram of the construction of a mobile communication terminal for measuring human body status according to one embodiment of the present invention;
Fig. 2 is an oblique view of the appearance of the mobile communication terminal for measuring human body as shown in Fig. 1;
Fig. 3 is a flow chart of a method for measuring human body status by means of the mobile communication terminal according to one embodiment of the present invention.

Symbols used for the main parts in the drawings:
10: brain wave measurement sensor
20: microphone
30: brain wave analyzing section
40: speech analyzing section
50: informing section
60: storage section

Detailed Description of the Invention

Advantageous embodiments of the present invention will be described in detail below with reference to the drawings.

First, the construction of a mobile communication terminal for measuring human body status of the present invention will be described with reference to Fig. 1 and Fig. 2. Fig. 1 is a block diagram of the construction of a mobile communication terminal for measuring human body status according to one embodiment of the present invention, and Fig. 2 is an oblique view of the appearance of the mobile communication terminal for measuring human body as shown in Fig. 1.

The mobile communication terminal for measuring human body status as shown in Figs. 1 and 2 comprises a brain wave measurement sensor 10, a microphone 20, a brain wave analyzing section 30, a speech analyzing section 40, an informing section 50 and a storage section 60.

The brain wave measurement sensor 10 has, on one side thereof, a sensor 12 attached to the head of the user for measuring the brain wave generated by the brain, and, on the other side thereof, a plug 14 for electrically conductive connection with the socket 5 of the terminal 1, so that the brain waves measured by the sensor 12 can be transmitted to the terminal. The brain wave measurement sensor 10 measures the α wave (8-13Hz),θ wave (4-7Hz) and δ wave (2-4Hz) emitted by the user.

At this time, in order to learn the user's body status more accurately, it is preferable to measure the user's brain wave when the user is in a sleeping state.

The microphone 20 converts the snores or sleeptalks of the user during sleep into electric signals of speech.

The brain wave analyzing section 30 compares the α wave (8-13Hz),θ wave (4-7Hz) and δ wave (2-4Hz) measured by the brain wave measurement sensor 10 with a pre-set brain wave spectrogram to analyze.

It is preferable at this time that the α wave (8-13Hz),θ wave (4-7Hz) and δ wave (2-4Hz) are divided into normal state, attention state (anxiety state) or alarm state (severe anxiety state) based on their respective intensities.

The speech analyzing section 40 compares the electric signals of speech transmitted through the microphone 20 with the pre-set speech signal for analyzing.

At this time, the values of the electric signals of speech are preferably divided into normal state, attention state (anxiety state) or alarm state (severe anxiety state) based on the intensities.

The informing section 50 divides the body status into "normal state", "attention state (anxiety state)" or "alarm state (severe anxiety state)" based on the result of analysis from the brain wave analyzing section 30 or the speech analyzing section 40, and informs to the outside through a display section 52 or a loudspeaker 54.

The display section 52 displays the result of analysis from the brain wave analyzing section 30 or the speech analyzing section 40 in a visual manner; and the loudspeaker 54 informs the result of analysis from the brain wave analyzing section 30 or the speech analyzing section 40 in an auditory manner.

The storage section 60 stores the results of analysis from the brain wave analyzing section 30 and the speech analyzing section 40, and the stored result values are used for statistics at each hour, each week or each month according to the user's requirement.

Now the method for measuring human body status by means of the mobile communication terminal according to one embodiment of the present invention will be described with reference to Figs. 1 and 3. Fig. 3 is a flow chart of a method for measuring human body status by means of the mobile communication terminal according to one embodiment of the present invention.

The method for measuring human body status by means of the mobile communication terminal as shown in Fig. 3 comprises a measuring step

S110, an analyzing step S120 and an informing step S130.

The measuring step S110 is to attach the brain wave measurement sensor 10 to the user's head to measure the α wave (8-13Hz),θ wave (4-7Hz) and δ wave (2-4Hz) generated by the brain and to measure the strength of sound source of the snores or sleeptalks of the user that have been converted by the microphone into electric signals of speech when the user is in a sleeping state.

At this time, in order to smoothly measure the strength of sound source of the snores or sleeptalks of the user, it is preferable to make the terminal to be as close to the user as possible.

The analyzing step S120 compares the values of the signals measured by the brain wave measurement sensor 10 and the microphone 20 in the measuring step S110 with a specific value pre-set according to the intensity thereof to analyze.

At this time, it is preferable to divide the body status into "normal state", "attention state (anxiety state)" or "dangerous state (severe anxiety state)" based on the result of analysis from the comparison between the measured values and the pre-set value.

The informing step S130 informs the result of analysis from the analyzing step S120 through the display section 52 in a visual manner or informs through the loudspeaker 54 in an auditory manner.

On the other hand, in another embodiment, the user may also be photographed by a camera device carried by the terminal according to the user's body status.

Those skilled in art would understand that the present invention may be implemented in other specific forms without changing the technical idea and essential features thereof, so it should be understood that the above-described embodiments are merely illustrative but not restrictive.

In summary, the advantageous effect of the present invention is that the mobile communication terminal for measuring human body status and the method for measuring human body status of the present invention measures the user's body status through the brain wave measurement sensor and the microphone carried by the mobile communication terminal, and compares it with a pre-set value so as to easily learn the user's body status.

In addition, by measuring the snores or sleeptalks of the user during sleep and informing the user, the user is enable to easily and continuously supervise his/her own body status.

Furthermore, by performing brain wave measurement and speech measurement using a terminal that is always carried by the user, the user may be able to conveniently learn his/her body status in daily life without being limited by the location and time.

The above specific embodiments are for illustrate the present invention but they are not for limiting the present invention.

What is claimed is:

1. A mobile communication terminal for measuring human body status, characterized by comprising:
a brain wave measurement sensor measuring the brain waves generated by a user;
a brain wave analyzing section for analyzing by comparing the brain waves measured by the brain wave measurement sensor with a pre-set brain wave spectrogram; and
an informing section informing the human body status to the outside according to the result of analysis from the brain wave analyzing section.

2. The mobile communication terminal for measuring human body status according to claim 1, characterized in that the brain wave measurement sensor has, on one side thereof, a sensor for measuring the user brain wave, and on the other side thereof, a plug for electrically conductive connection with a socket so as to transmit the brain waves measured by the sensor to the terminal.

3. The mobile communication terminal for measuring human body status according to claim 1, characterized in that the informing section comprises:
a displaying section that displays the result of analysis from the brain wave analyzing section in a visual manner; and
a loudspeaker that informs the result of analysis from the brain wave analyzing section in an auditory manner.

4. The mobile communication terminal for measuring human body status according to any one of claims 1 to 3, characterized by comprising:
a microphone for converting the sound source generated from the user

into electric signals of speech;
a speech analyzing section for analyzing by comparing the electric signals of speech transmitted through the microphone with pre-set speech signals; and
a storage section for storing the results of analysis from the brain wave analyzing section or the speech analyzing section.

5. The mobile communication terminal for measuring human body status according to claim 4, characterized in that the microphone is used to convert snores or sleeptalks of a user into electric signals of speech when the user is in a sleeping state.

6. The mobile communication terminal for measuring human body status according to claim 4, characterized in that statistics is made to the results of analysis stored in the storage section at certain intervals.

7. A method for measuring human body status by means of a mobile communication terminal, characterized by comprising:
a measuring step that measures the body status of a user through a brain wave measurement sensor and a microphone;
an analyzing step that analyzes by comparing the signal values measured by the measuring step with a pre-set value; and
an informing step that informs the result of analysis from the analyzing step.

8. The method for measuring human body status by means of a mobile communication terminal according to claim 7, characterized in that the measuring step measures the α wave, θ wave and δ wave generated by the user's brain using the brain wave measurement sensor and measures the strength of sound source of the snores or sleeptalks of the user that have been converted by the microphone into electric signals of speech when

the user is in a sleeping state.

9. The method for measuring human body status by means of a mobile communication terminal according to claim 7, characterized in that the analyzing step divides the human body status into normal state, attention state or dangerous state according to the result of analysis from the comparison between the measured values and the pre-set value.

Abstract

The present invention relates to a mobile communication terminal and method for measuring human body status, which measures the body status of a user through a brain wave measurement sensor and a microphone carried by the mobile communication terminal and compares it with a pre-set value so as to easily learn the body status of the user. The present invention includes the following sections: a brain wave measurement sensor measuring the brain waves generated by a user; a brain wave analyzing section for analyzing by comparing the brain waves measured by the brain wave measurement sensor with a pre-set brain wave spectrogram; and an informing section informing the human body status to the outside according to the result of analysis from the brain wave analyzing section. In addition, by measuring the snores or sleeptalks of the user during sleep and informing the user, the user is enabled to easily and continuously supervise his/her own body status. Furthermore, by performing brain wave measurement and speech measurement using a terminal that is always carried by the user, the user may be able to conveniently learn his/her body status in daily life without being limited by the location and time.

Drawings

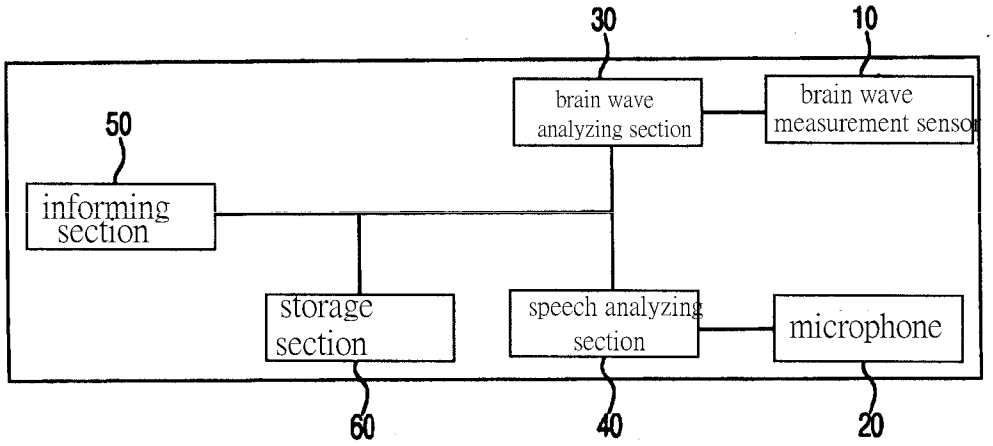

Figure 1

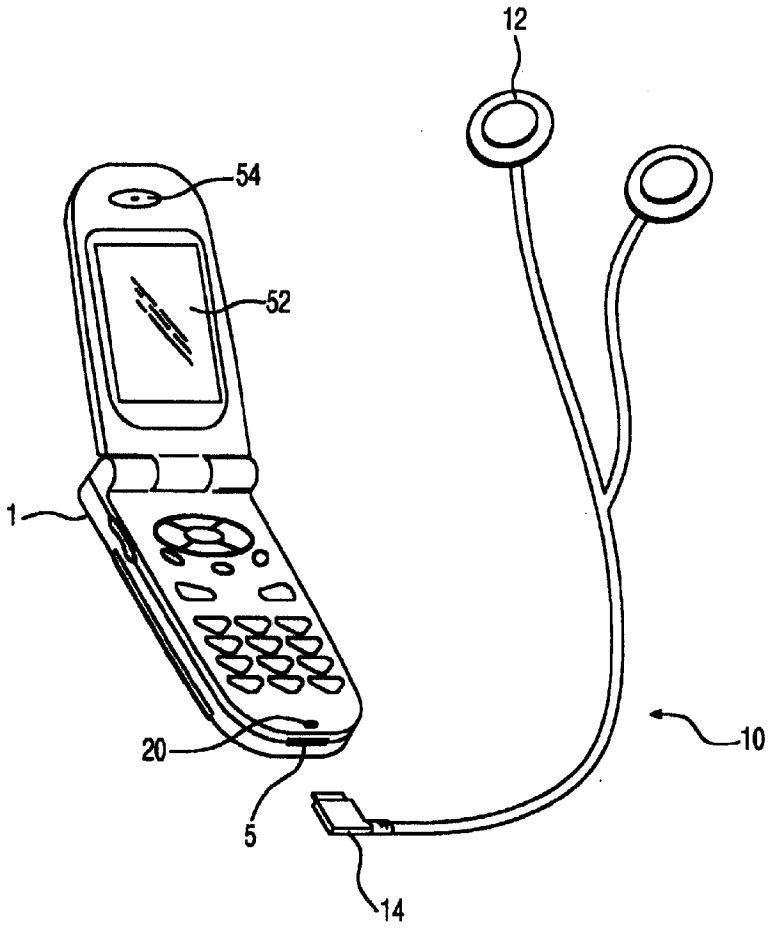

Figure 2

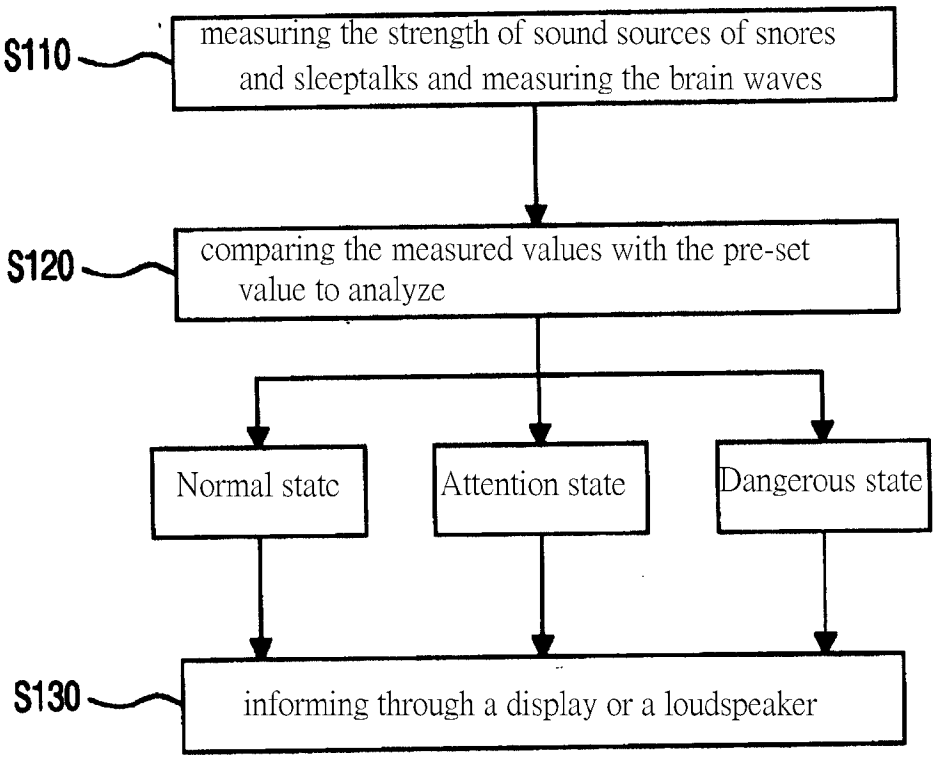
S110
measuring the strength of sound sources of snores and sleeptalks and measuring the brain waves
S120
comparing the measured values with the pre-set value to analyze
Normal state
Attention state
Dangerous state
S130
informing through a display or a loudspeaker

Figure 3